

Claims 1- 21 were rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent 4,632,341 to Repperger et al. ("Repperger"). Applicants respectfully traverse.

The Office action stated

...Repperger et al. teaches a control stick (108) in the form of a single upright joystick. A pilot assistance system (115) includes a G force-to-electrical transducer (114), a computer apparatus enclosure (116), and a electrical-to-mechanical transducer enclosure (120) (see column 4, lines 33-45). Accelerometer (330) serves as the G force to electrical signal transducer indicated at (114, Fig 1), this relating to the applied pressure. The computer apparatus enclosure (116) is connected with the transducer apparatus enclosure (120) by way of electrical signal coupling path (118) and the electrical-to-mechanical transducer is connected with the control stick (108) by way of a mechanical signal coupling path (122)....

It is not specifically taught by Repperger et al. that the fluid medium is inclosed in a hermetically sealed manner.

(pages 2-4, section 2). In short, the Office Action argued that Repperger discloses an invention which is the same as the present invention except hermetically sealed fluid medium.

However, although Applicants agree that Repperger does not disclose hermetically sealed fluid medium, there are more significant structural differences between the Repperger reference and the present invention as explained below.

A. Claims 1-10

The present invention claimed, as defined in claim 1, is directed to:

[a]n input device for providing information with a data processing system, comprising:

(A) means for containing fluid medium in a hermetically sealed manner;

(B) means for communicating said fluid medium going out from or coming into said containing means;

(C) means for restricting flow of said fluid medium passing through said communicating means;

(D) means for applying pressure to said fluid medium responsive to direct or indirect inputs from an operator so as to change volume of said fluid medium contained in said containing means, thereby said fluid medium is passed through said communication means;

(E) means for generating control information responsive to operation of said pressure applying means by the operator, said generated control information being input to said data processing system; and

(F) means for generating feedback information responsive to said control information input from said control information generating means, said feedback control information being fed to said restricting means;

whereby said restricting means restricts the flow of said fluid medium through said communication means responsive to said feedback control information fed by said feedback information generating means.

(emphasis added). Notably, in the input device of the present invention, the pressure is applied solely by an operator, and the feedback information, which restricts fluid flow, is indirectly responsive to operation of the pressure applying means by the operator. Thus, the fluid flow resistance changes based on the operator's operation in the present invention.

On the contrary, Repperger merely discloses a G force responsive pilot assistance system 115, which senses G forth field at 334 (330) and applies it to a mechanical connecting rod (306) to the control stick (300). (see column 7, lines 63-68 and Fig. 3). Although the pilot assistance system of Repperger uses fluid pressure to apply the sensed G forth to the control stick, the fluid pressure is changed based on the sensed G forth rather than the operator's operation. Repperger never discloses an input device wherein the fluid flow resistance changes based on the operator's

operation. In other words, Repperger fails to disclose at least the (E) means for generating control information responsive to operation of the pressure applying means by the operator and the (F) means for generating feedback information responsive to said control information input from said control information generating means.

Additionally, the Repperger reference does not give any motivation for one of ordinary skill to change the Repperger's G force responsive pilot assistance system to the input device of the present invention. The object of the Repperger's invention is to enhance the performance of a human operator in operating a feedback system in the presence of G force field. (see Repperger, column 3, lines 24-30). Repperger does not even suggest the object achieved by the present invention, that is to obtain a direct and natural feeling of operation by making it possible to freely change the operation feeling. (see the specification, page 2, line 26 to page 3, line 4). *not clear*

Therefore, the present invention recited in claim 1 is not obvious over Repperger. Further, since claims 2-10 are dependent from claim 1 and include all the recitations of claim 1, Repperger cannot render claims 2-10 obvious. Applicants respectfully request that the rejection be withdrawn.

B. Claims 11-20

The present invention claimed, as defined in claim 11, is directed to:

[a]n input device for improving man-machine interface comprising:

(A) a sealed chamber connected to a restrictor pipe which serves as a passageway for fluid flow from or into said chamber;

(B) a control movement transmission mechanism wherein direct or indirect control inputs from an operator result in changes in the volume of fluid in said chamber, said changes being induced by an inflow or outflow of fluid through said restrictor pipe;

(C) a control data generation means capable of physically monitoring the operation of said control movement transmission mechanism and converting that operation into corresponding electrical signals;

(D) a transmission circuit through which the signals generated by said control data generation means are fed to a host device;

(E) a fluid flow variable restriction means capable of electrically and variably controlling the fluid flow status in said restrictor pipe; and

(F) a receiver circuit capable of driving said fluid flow variable restriction means through the application of a control response signal applied to said restriction means from said host device.

(emphasis added). In the input device of the present invention, a control movement is always made by an operator (see the element (B)), and the fluid flow is restricted by a signal from the host device (see the element (F)) to which the signals generated by the control data generation means (C) are fed by the element (D) to the element (E). Since the means (C) monitors the operation of the control movement and converts the movement into the signals, the fluid flow is indirectly restricted by the operator's movement. Thus, the fluid flow resistance changes based on the operator's operation in the present invention.

Thus, for the same reasons explained as to claim 1, the present invention recited in claim 11 is not obvious over Repperger. Further, since claims 12-20 are dependent from claim 11 and include all the recitations of claim 11, Repperger

cannot render claims 12-20 obvious. Applicants respectfully request that the rejection be withdrawn.

C. Claim 21

The present invention claimed, as defined in claim 21, is directed to:

[a] pointing device for inputting data to a computer, comprising:

(A) a sealed chamber connected to a restrictor pipe which serves as a passageway for fluid flow from or into said chamber;

(B) a transmission mechanism for transmitting inputs from an operator to said chamber so as to cause changes in the volume of fluid in said chamber, said changes being induced by an inflow or outflow of fluid through said restrictor pipe;

(C) a monitoring device capable of physically monitoring the operation of said transmission mechanism and converting that operation into corresponding electrical signals;

(D) a transmission circuit through which the signals generated by said monitoring device are fed to the computer;

(E) a fluid flow variable restriction device capable of electrically and variably controlling the fluid flow status in said restrictor pipe; and

(F) a receiver circuit capable of driving said fluid flow variable restriction device through the application of a control response signal applied to said restriction device from said computer.

(emphasis added). In the input device of the present invention, transmission mechanism is always operated by an operator (see the element (B)), and the fluid flow is restricted by the fluid flow variable restriction device (E) driven through application of a signal from the computer (see the element (F)) to which the signals generated by the monitoring device (C) are fed by the element (D) to the computer. Since the means (C) monitors the operation of the transmission mechanism and converts the movement into the signals, the fluid flow is indirectly restricted by the

operator's movement. Thus, the fluid flow resistance changes based on the operator's operation in the present invention.

Thus, for the same reasons explained as to claim 1, the present invention recited in claim 21 is not obvious over Repperger. Applicants respectfully request that the rejection be withdrawn.

III. Conclusion

In view of the above amendment and remarks, Applicants submit that all of rejections in the Office Action have been overcome and all claims are now in condition for allowance, early and favorable notice of which would be appreciated.

In the event that all of the claims are not allowed, Applicants specifically request a personal or telephonic interview to discuss any remaining issues and thereby accelerate the eventual allowance of all of the present claims.

No fee is believed to be due for this submission. Should any fee be required in connection with or as an adjunct to this submission, please charge it to Deposit Account No. 16-1150.

Respectfully submitted,

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